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FOUR NEW SOIL CONSERVATION DISTRICTS ORGANIZED

Four Soil Conservation Districts have been organized by farmers in South Dakota, having completed all of the steps necessary to receive charters.

Hearings were held, referendums conducted, and supervisors appointed and elected; and the State Committee has approved their organization. Each of the districts has prepared a Program of Work, a Work Plan and a Request for Assistance. Memorandums of Understanding have been signed between the District Supervisors and the United States Department of Agriculture.

The first two districts to be organized--Tri-County and Brown-Marshall--are now on an operations basis, and their supervisors have signed cooperative agreements with farmers living within the area. The last two districts organized--Brule-Buffalo and Clearfield-Keyapaha--should be on an operating basis by the first of June. The four districts have set up head-

quarters at Faith, Hecla, Chamberlain and Winner.

Detailed surveys will be made in these district areas to assist the supervisors in carrying out their Work Plan. A complete economic survey has already been made in the Brown-Marshall District and is now being made in the Tri-County District. Soil, vegetative, and aerial surveys will be completed in these four districts sometime this summer. This material will be very valuable in determining the amount and kind of conservation work to be carried on in the districts.

Practices followed by cooperating farmers since 1935 in the Soil Conservation Service erosion control projects and CCC camp areas demonstrated the methods that could be used to conserve soil and moisture resources in South Dakota. The soil conservation districts are established by and for one mutual benefit of land operators who wish to apply these practices on farms and ranches within the district boundaries.

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SOUTH DAKOTA
SOIL CONSERVATION DISTRICT DIRECTORY

TRI-COUNTY, 359,000 acres

Headquarters - Faith, South Dakota

Supervisors

Joseph M. Heimer, Dupree, Chairman
Chas. E. Jonas, Faith, Vice-Chairman
Alvin Anderson, Avance
Frank Eichelman, Isabel
Frank Gottschalk, Faith
Lyle M. Bender, Faith, Secretary

Soil Conservation Service Technicians
Assigned to the District

Benjamin R. Fenn, District Conservationist
Ingram T. Hermanson, Engineer
Arthur L. Holding, Range Specialist
Glenn A. Avery, Soils Technician

BROWN-MARSHALL, 175,000 acres

Headquarters - Hecla, South Dakota

Supervisors

Frank Feser, Claremont, Chairman
George Lane, Hecla, Vice-Chairman
F. L. Farrar, Newark
Merl Grupe, Britton
Anton Fangen, Houghton
Gale Peppers, Britton, Secretary

Soil Conservation Service Technicians
Assigned to the District

L. M. Sloan, District Conservationist
Lloyd L. Bovee, Conservationist
Leslie E. Johnson, Soils Technician
Charles E. Reagin, Forester

BRULE-BUFFALO, 115,200 acres

Headquarters - Chamberlain, South Dak.

Supervisors

Herman Vicreck, Kimball, Chairman
Edward Piskule, Kimball, Vice-Chairman
B. G. Ness, Pukwana
Frank Benedict, Lyonville
Leo C. Piskule, Pukwana
Howard K. Schultz, Chamberlain,
Secretary

CLEARFIELD-KEYAPAH, 132,000 acres
Headquarters - Winner, South Dakota

Supervisors

Dennis B. Lyons, Millboro, Chairman
Carl H. Koszler, Clearfield, Vice-Chairman
Clyde H. Sargent, Clearfield
Walter Hellman, Winner
Grover H. Moyer, Winner
Orville E. Anderson, Winner,
Secretary

Technicians from the Soil Conservation Service will be assigned to the Brule-Buffalo and Clearfield-Keyapaha districts as soon as each Memorandum of Understanding with the U. S. Department of Agriculture is approved in Washington.

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EXTENSION DEMONSTRATION FARMS
SHOW CONSERVATION METHODS

Numerous farms being operated this year on a soil and moisture conservation basis in counties outside of Soil Conservation Service erosion control areas were cited today by cooperating technicians from the Huron project as reflecting the interest of South Dakota farmers in better land-use methods.

These farmers are cooperating with the State Extension Service, through their county agents, in taking advantage of limited technical assistance provided by the federal Service for planning individual erosion control demonstration farms. Farms suitable for demonstrational purposes--only a few farms in any one county--are approved by the county agent, who requests Soil Conservation Service assistance for helping the operator put into operation an erosion control and moisture conservation program in line with practices previously proved sound on cooperating farms and ranches within project or CCC camp areas.

In virtually every case, a plan has been worked out under which strips, or narrow fields, are cultivated on the contour. That is, the center of these strips is established on a level line. When this system of farming is used, all tillage operations are crosswise to the slope. Any water that flows in its natural course down the hillside must go across all furrows, drill marks, tractor wheel tracks, and so on. Any such obstruction detains the water on its down-hill movement and allows more of it to soak into the soil.

Tillage methods that will provide a rough cultivated surface, and those that preserve crop residue on the surface, to protect against wind and further to aid in moisture retention, are companion practices used under the soil conservation plans. A relatively new tillage method in this region is basin listing, or listing with an attachment behind the lister that constructs small dams in the furrows and thereby provides basins, or pockets for holding water on the field.

Some farmers have basin listed contoured stubble field strips in the fall as soon after harvest as practicable, to provide a means of holding run-off water during the fall and spring. Basin listing has been used in the northern Plains area more for summer fallow than otherwise. Although authorities have been slow to venture blanket recommendations concerning the use of the damming lister under various conditions, until there has been sufficient time more accurately to evaluate the results, there have been numerous instances reported, both of increased moisture penetration and of better crop yields on land so treated.

The objective of using the contour system of cultivation, in any event, is to hold the raindrop where it falls.

Thus, for example, when putting in small grain, tillage practices are followed that leave small furrows or ridges around the level of the slope. These act as little dams on the hillside. Such water conservation makes an increased amount of moisture available for future crop growth and also helps to prevent soil losses that result when uncontrolled run-off water flows down farm slopes.

These and similar practices are those which the demonstration farm operators are using in their balanced conservation land-use plans

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HANDBOOK ON RANGE PRACTICES AVAILABLE

The Extension Service has published Mimeograph Circular No.175, "Handbook for Range Examiners". This handbook contains the following discussions: (1) Engineer Developments on Range Land, (2) Rodents on Ranges and Pastures, (3) Recommended Range Management Practices (4) Reseeding Denuded Range Land and Abandoned Crop Land.

The information contained in this publication was compiled by the technicians of the Soil Conservation Service and approved by the Extension Specialists. Copies have been made available to all Range Examiners under the Agricultural Adjustment Administration program.

Material included in this handbook is a brief summary of the information presented by the Range Management Specialists, Engineer, and Soils Technician of the Soil Conservation Service who assisted the Extension Service and the Agricultural Adjustment Administration in a series of Range Examiner Training Schools. Copies of this circular may be obtained from your local county agent.

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COUNTY AGENT CONFERENCES

A series of conferences for county agents was arranged in March by Director A. M. Eberle of the State Extension Service for the purpose of presenting to them the latest information from the Soil Conservation Service.

Four of these conferences were held:

March 21--CCC Camp, Alcester
March 22--Soil Conservation Service Project, Huron
March 23--Soil Conservation Service Project, Winner
March 24, CCC Camp, Fort Meade, (Sturgis)

The meetings were conducted by the Extension District Supervisors, and the mornings were devoted to discussions by Soil Conservation Service technicians. The following subjects were discussed:

1. Analysis of a Practical Farm Plan
2. Tillage Rotations and Fertility
3. Wind Erosion, Its Cause and Cure
4. Water Erosion Control and Retardation Structures
5. Soils
6. Range Management Supplementary Pastures
7. Result and Cost Records

The discussions by the different Soil Conservation Service technicians have been prepared in a brief form and published. The publication not only contains a brief review of the discussions, but also includes additional information and supplementary data on the problem of soil and moisture conservation. A limited supply of this summary is available, and copies may be obtained by writing to the State Extension Service at Brookings.

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51,000 TREES PLANTED IN LYMAN COUNTY

The Soil Conservation Service during the month of April planted 51,000 trees in Lyman county. This tree planting was done with the help of CCC labor from the Chamberlain Camp.

The trees were planted on farms where the operators signed cooperative agreements with the Soil Conservation Service in 1936. At that time, a CCC Camp was located at Presho and worked on sixteen farms in Lyman county before the camp was moved. These farms have contour farming, pasture furrows, stock water ponds, terraces, and other practices that were planned in 1936.

The season was not favorable for tree planting at the time the cooperative agreements were drawn up and 1937 again was considered an unfavorable year for planting trees in this area. The heavy rains this spring, however, convinced both the cooperators and the Soil Conservation Service that this would be an ideal time to plant trees. Although the CCC camp had been moved, the Service made arrangements to provide the CCC assistance from the Chamberlain camp to plant these trees and complete the plan of conservation operations outlined in the Cooperative Agreement.

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CONTOUR FARMING MAKES EASIER PULLING POSSIBLE

Farm implements pull more easily on a level field than they do on a steep hillside. Everybody knows this fact, but it has been only recently that we have learned to plan our fields and plant crops so our implements may be pulled along level lines (contours) around sloping fields instead of up and down the slopes.

Moreover, farming on the contour saves much valuable plant food and many tons of soil that otherwise are lost through erosion, caused by cultivating up and down the slopes. If you have not tried contour farming or the construction of contour pasture furrows, you will be surprised at their simplicity and effectiveness as soil conserving measures.

The first step in contour farming is to run the contour, or level lines. Stake out the first contour around the top of the slope, and continue with additional level lines at regular intervals down the slope. Plowing, cultivating and similar operations follow these lines. Each tillage operation along the slope with these contour lines leaves a miniature terrace, slowing up run-off water and causing it to drop its load of soil. This method of soil conservation has the added advantage of not costing any additional money or labor.

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TOURS

The State Extension Service, in cooperation with the Soil Conservation Service, plans to conduct a number of tours this summer of projects, camps, districts and Extension demonstration farms.

The dates will be announced in the near future. Most of them will be held during the latter part of June or the first part of July.

Plans are to hold tours of the projects at Winner and Huron, the CCC camps at Alcester and Fort Meade, and perhaps the Soil Conservation District at Faith, and of Extension demonstration farms in different counties throughout the state. These field trips will be scheduled by the local county agent, who will announce them publicly.

Everyone in South Dakota will be invited to attend one of these tours. If any group, such as a commercial club, Smith-Hughes class, 4-H Club or other organization is interested in visiting one of these areas, a special tour may be arranged for it.

Some of the practices which will be observed and the results noted in the tours this year include terracing, water spreading, regrassing, contour furrows, contour ditches, strip cropping, tree planting, stock water ponds, improved tillage methods, and proper use of crop residue.

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BULLETIN ON TERRACING

When should farmers build terraces to control erosion on sloping fields? What kind of terraces should they build --broad base or narrow ridge? Why do some terraces fail while others stand up for years? When does it pay to terrace a field? And what is the cheapest and best way to get the job done? These and dozens of other questions about terracing are all answered in a new Farmers' Bulletin of the Department of Agriculture.

The bulletin is Number 1789 and is called, "Terracing for Soil and Water Conservation." It was written by C. L. Hamilton of the Soil Conservation Service. Hamilton traces the use of field terraces from Colonial Days up to the present time. He explains why early efforts generally failed and tells how experiments in recent years have led to improvements in terrace designing.

This bulletin is a compilation of the best information now available on terrace construction and its coordination with other recommended soil conservation practices. It is hoped that this material will lead to a more efficient use of terracing.

HAVE WIND VELOCITIES INCREASED?

The remark has often been made that soil blowing has increased the last few years because of more winds, higher velocities, and longer duration. The wind velocity records at the Huron Weather Bureau Station show that the past twenty-seven years was in 1911.

Generally speaking, it takes a wind of more than thirty miles an hour to cause a dust storm. The weather records show that in 1934 there were only 12 days when the wind reached a

velocity of thirty miles an hour, as compared with 19 days in 1933 and 39 days in 1927.

A careful check of the wind velocity data reveals the fact that it is necessary to look beyond wind velocity to find the true reason for soil blowing. Some of the factors that must be taken into consideration in determining why we have dust storms are: Drought, insect infestations, overgrazing and overstocking, overcropping, wrong methods of tilling, unprotected summer fallow, improper crop rotations, destruc-

Average Wind Velocity For the Year In Miles Per Hour

Year	Mile per hour	Days wind 30 to 39 miles	Days wind 40 to 50	Annual Miles
1911	11.1			
1912	10.3			
1913	10.4			
1914	11.3			
1915	10.7			
1916	11.4			
1917	11.0			
1918	11.0			
1919	10.6			
1920	10.4			
1921	9.4			
1922	9.5			
1923	9.5			
1924	9.7			
1925	9.4	Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.		
1926	9.9	2 3 3 3 6 3 2 1 0 2 3 3 34 5		
1927	9.7	7 1 7 2 7 3 3 1 1 3 2 2 39 4		
1928	8.2	2 0 0 3 2 2 1 1 0 0 0 0 10 2		
1929	8.4	2 0 2 1 4 2 1 2 0 1 1 0 16 2		
1930	8.6	0 1 0 1 4 3 1 2 0 1 1 0 14 1		
1931	8.6	0 0 1 1 1 0 0 0 1 1 1 0 6 1		
1932	10.0	0 0 1 0 0 0 0 0 0 1 1 0 3 1		
1933	10.2	4 0 0 1 3 2 2 0 4 3 0 0 19 2		
1934	10.1	0 0 2 2 2 2 2 2 0 0 0 0 12 2		
1935	9.9	2 0 6 2 2 1 0 1 1 1 0 1 17 1		
1936	9.7	0 0 4 2 0 1 2 1 1 2 2 0 15 0		
1937	10.0	0 2 1 4 3 1 0 1 0 2 1 0 15 3		

tion of crop residue.

The chart on the opposite page gives the wind velocity data in detail for the past 27 years. This chart shows the average wind velocity for each year in miles per hour, the number of days when the wind velocity was from 30 to 39 miles per hour, and the number of days each year when the wind velocity exceeded 40 miles per hour. A careful study of this information will reveal that there is little definite correlation between high winds and dust storms, unless there are other contributing factors which have left the soil in a blow condition.

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SOIL CONSERVATION BRIEFS

Many articles are written, numerous speeches made and various bulletins published on the topic of Soil Conservation. To obtain all of this information would be difficult, and to read it all would be almost impossible. We are, therefore, picking out a few short paragraphs of interest from different speeches and publications which have been brought to our attention during the past few months.

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"The losses by wind erosion are not confined to any one area. The soil erosion survey made by the Soil Conservation Service in 1934 showed that about 4,000,000 acres, or 82 percent of the soils of South Dakota, have been seriously injured by wind erosion. About 89,000,000 acres, or 4.7 percent of the soils of the United States have suffered serious injury from the same cause. In Iowa, 4,000 acres have been ruined by wind erosion, while 30,000 acres have been severely injured in Illinois."

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"Bare and badly eroded soils may start moving in winds from 7 to 8 miles per hour, while a severe wind of from 35 to 40 miles per hour may not raise any perceptible dust from a well covered pasture or grain field. Usually the blowing starts from some vulnerable spot consisting of loose soil particles and proceeds to spread in a fan-like shape with the wind. The moving soil gains momentum and destructive force as it moves along."

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"Mechanical means. Under certain conditions soil movement may be stopped by spreading straw or manure at the focal point of blowing. In extreme cases, drift fences similar to snow fences may be used to prevent the starting of erosion at bad spots. They may also be used to protect places from soil drifting in from outside areas."

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"We are very interested in a long time grass-legume rotation that will allow all the cultivated land to be in grass and legumes over a period of years. Tests made at the State College indicate that many of the soils of the state have lost an alarming percentage of the original organic matter."

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"Poisonous Plants. The cheapest and most satisfactory method of preventing stock losses from poisonous plants is to allow an ample supply of palatable forage. Poisonous plants are usually not comparable in palatability to desirable perennial forage plants, but are eaten many times because no reserve of desirable vegetation is present. Stock hard pushed on long trails often die of poison because such plants are the most accessible."

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"It has been my observation that because mechanical structures and control methods are quickly observed, easy to write about and bring rather quick results, we have a tendency to think of them as the fundamental basis for erosion control. This is not the case from a practical farmer's viewpoint. When we plan a farm, we usually consider the following factors in the order of their importance.

1. Proper land use.
2. Size of the operating unit.
3. Vegetative control of erosion such as crop rotations, residue management, emergency crops and cropping systems."
4. Mechanical control methods."

"If there is a soil or water conservation problem on a farm or a possibility of a problem in the future, it is time that some practical steps be taken to eliminate or avoid them, because the practices used in the past are probably accelerating the problem."

"'Making running water walk' explains the solution of water erosion control--very briefly but correctly. Any structure built or method devised that will hold the velocity of water low enough so that in passing over a given piece of land it will not be capable of carrying soil in suspension, is a means of water erosion control. Mother Nature's method of holding the soil through the use of vegetation has been time tested and proved down through the ages. But ever since the beginning of agriculture, erosion has been a problem, and it must be held in check. Civilization has induced erosion; civilization, therefore, must help nature to combat it."

"Our problem in water erosion is to control run-off. If we can satisfactorily take care of the run-off, our water erosion problem is ended. As I see it, there are only two methods of attack: (1) We must detain the normal run-off water where it falls until the soil has time to absorb it and store it for future crop use, or (2) We must remove the water from the field in such a manner that it will not cause erosion."

"I think sometimes that we are missing a bit in the western part of the state by not utilizing more small grain hay. Recent work at the Havre Experiment Station at Havre, Montana, indicates that rye is almost equal to alfalfa hay as a feed for wintering beef cattle."

"From an erosion standpoint, we know that a vegetative cover on the soil is very important. The kind of tillage and the time of tillage operations to a large extent determine the percentage of time during the rotation that a vegetative cover will remain on the soil. This is important all over the state, but is vital and essential in planning for wind erosion control."

"Contour strip cropping is the most economical method of controlling water erosion if the combined conditions affecting the problem are such that this method will give the desired control. Except for the inconvenience of small crooked fields and the purchase of a lister for those who do not already have one, the expense of this control is practically nothing after the lines are laid out."

CHARLES MIX HAS FIVE SOIL
CONSERVATION DEMONSTRATIONS

JAMES ARSHEM DECLARIES
WAR ON GULLIES

Five farm plans are being worked out in Charles Mix County by representatives of the Huron Soil Conservation Service Project cooperating with County Agent R. O. Swanson. The Cooperators are James Arshem and Forrest Scott of Geddes; Marty Mission at Marty; Robbinsdale at Wagner, and Pete Olson at Academy.

The following Soil and Water Conservation practices are being demonstrated on these farms:

1. Wind strip cropping.
2. Pasture furrows.
 - a. Retention furrows.
 - b. Spreader furrows.
3. Contour farming for prevention of soil erosion and for water conservation.
4. Controlled grazing of pastures.
5. Improved crop rotation.

Land use plans are being worked out with the farmer, the County Extension Agent, and the Soil Conservation Service assisting.

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The distinction between rills and gullies is purely one of size. Rills can be filled or obliterated by normal cultivation. Gullies are too large to be cured in this way and require special measures for their control.

James Arshem of Geddes, South Dakota, is working with County Agent R. O. Swanson and Technicians of the Huron Soil Conservation Service Project to prevent any further gullyling on his farm.

The problem Mr. Arshem has is a large pasture which delivers water on to the cultivated land, thereby causing such a degree of run-off that his cultivated land is gullyling. The principal being used on this farm is to hold the water out of the gullies. Mr. Arshem is convinced that this is a better practice than concentrating his efforts on the gullies proper.

The water is being handled by a series of furrows that divert the water out of the pasture draws and spread it on the flatter areas in the pasture. This water is spread or held by a system of spreader and retention furrows.

The cultivated land will be contour farmed to prevent water from running off of it.

Mr. Arshem believes that these practices will play a major part in controlling the erosion on his farm as well as in holding the water on the land, thereby improving his crops and pasture.

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By removing the natural vegetation in humid regions and thus destroying the protection of the soil, man exposes the land to erosion much as it is exposed under arid climates.

UNITED STATES
DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

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